

## 4. LATEST ACHIEVEMENTS IN ENGINEERING, ECOLOGY AND ARCHITECTURE

### IMAGES IN MODERN ARCHITECTURE

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Architectural building has several assignments. On the one hand, as a pragmatic construction, it is to pursue utilization function. On the other hand, being a piece of art, it has to satisfy human's esthetic demand, which is achieved with the help of imagery of architectural object. Thus, the aim of the paper is to consider modern architecture as a bearer of information at the esthetic level.

Any architectural piece is dual by its nature. As a rule, it has been given two senses by its creator. These senses are engendered by two separated domains of human activities. Primarily, piece of art is a pragmatic construction, meaning 'shelter', defending a man from ruinous influence of the element and creating necessary conditions for his life. But the second role of architectural building is to be a piece of art. In the common sense the architecture by itself emerges only at the moment when a pure functional erection gains distinctive features.

Image is a complex reflection of reality, which is corrected via both intellectual (logic) and intuitive-emotional factors. They translate the programmed information, to be inherent to architectural pieces of art. This information has an intercultural, emotional-esthetic and artistic content. The latter is of immense value both to human practical orientation and formation of psychological and value orientation education.

Image serves as a necessary tool for bringing architectural object to entity, i.e., *organized harmonic form*. In architecture imagery deprivation means incapacity not only to satisfy existing social demand but also to have a tool for harmonization of object-spatial environment

Images undergo certain modifications with time, because they are closely linked with human thinking and consciousness. Each person can interpret the same image in his own way. It predetermines multi-faceted sense of an image in architecture. Imagery of modern architecture has been bearing different image content in comparison with both ancient times and medieval architecture. Nevertheless, imagery architecture keeps influencing a human being immensely.

From the technical point of view a modern building, being perceived as a lifeless, dead, typical, unidentified object, becomes a hostile phenomenon, rejected by human's feelings. Only imagery can animate such perception of architecture.

Hence, imagery in modern architecture is an essential component for architectural spatial environment harmonization, its holistic esthetic perception and satisfaction of human's esthetic demands. The absence of imagery sense in architectural object negatively affects a human being. Consequently, further research is needed to distinguish an appropriate content among the possible interpretations of

imagery in modern architecture.

## **ANALYSIS OF URBAN CONSTRUCTION: CONCRETE AND REINFORCED CONCRETE STRUCTURES**

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Currently in Ukraine a significant number of buildings and structures are erected using composite assembly units of concrete and reinforced concrete. They are prefabricated and monolithic concrete structures, complex structures made of different concrete types, walls of concrete blocks, monolithic buildings with long-term interruption in concreting of different parts, constructions concreted in the process of reconstruction or rebuilding of damaged structures. Typically, these designs have different structural and strength characteristics associated with the hardening process based on conditions of technological processes and technical characteristics of architectural and design solutions.

To ensure the operational reliability of buildings and structures, which depends on the joints' strength, the solidity of the joints, cracking resistance of composite structures, their stiffness and stability of individual structural elements and the entire structure, the degree of tightness of the joints of all structures and contacts between them should have a close strength reserve. Therefore, considerable attention in projecting and construction is paid to improving design solutions of joints and technologies for their implementation. With the advent of high strength synthetic materials and, in particular, acrylic adhesives a possibility appeared of these materials application in load-bearing structures. It should be noted that in some cases, the use of acrylic adhesives to enhance or restore the bearing capacity of concrete or reinforced concrete structures is the only possible way.

The methods of connecting concrete elements with acrylic adhesives were used during the reconstruction of the foundation for the largest unit at "Kharkov Electromechanical plant". Besides, the above-mentioned method were used to repair and rebuilt foundations at "Kharkov tractor plant of motor vehicle chassis".

Thus, as a result of the pilot study and pilot implementation it can be concluded that adhesive bonding of concrete acrylic adhesives are more effective than compound adhesives based on other polymers used for these purposes at the present time. Acrylic adhesives are simple and reliable in preparation, low compound. Concrete bonding technology is simple and reliable. The operations for performing special types of work can be motorized.